

Lab 4 - Router as a DHCP Server

Lab 4: Configuring a router as a DHCP server

Physical topology is as follows:

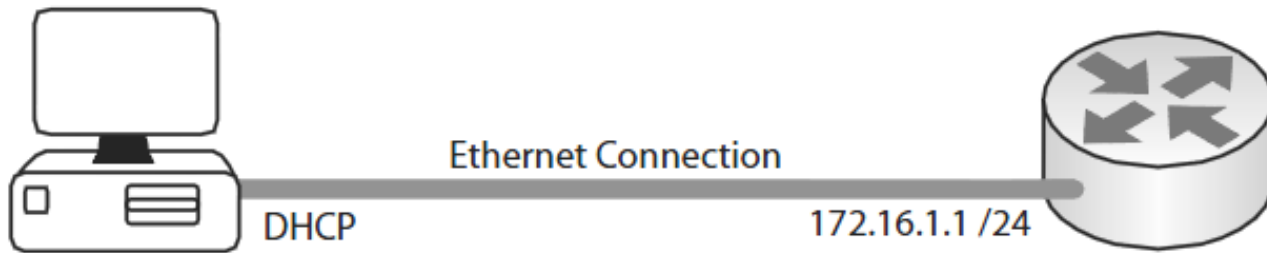


Figure 16–7: DHCP server

Lab exercise

Your task is to configure the router to issue an IP address to the host via DHCP. Please feel free to try the lab without following the Lab walk-through section.

Purpose

Configuring a router to act as a DHCP server is now included in the CCNA exam. You may well also have to carry out this task as a network engineer whilst on site.

Lab objectives

1. Use the IP addressing scheme depicted in the diagram above. You will need to connect the router to the PC via crossover cable unless you have a switch you can use.
2. Set the IP address on the router fast Ethernet interface as 172.16.1.1 /24.
3. Set the PC to search for an IP address via DHCP.
4. Configure a DHCP pool on the router for network 172.16.1.0 /24.
5. Add an excluded address on the router and add TCP settings (optional).
6. Finally to test that DHCP is working renew the IP address on the PC.

Lab walk-through

1. To set the IP addresses to an interface you will need to do the following:

```
Router#conf t
```

```
Router(config)#interface fast 0/0 « Check if your route is modular
```

```
Router(config)#ip address 172.16.1.1 255.255.255.0
```

2. Enable DHCP on your router and set the address pool (from configuration mode) :-

```
Router(config)#service DHCP « Turn DHCP on
```

Router(config)#ip dhcp pool pool1 « **Name your pool pool1**

Router(dhcp-config)#network 172.16.1.0 255.255.255.0 « **This is your DHCP pool**

Router(dhcp-config)#lease 3 « **3-day lease on the IP address**

Router(dhcp-config)#ip dhcp excluded-address 172.16.1.1

Router(config)#exit « router drops back to config mode

Optional Commands

Router(config)#ip dhcp pool pool1

Router(dhcp-config)#dns-server 24.196.64.39 24.196.64.40

Router(dhcp-config)#default-router 10.10.10.254

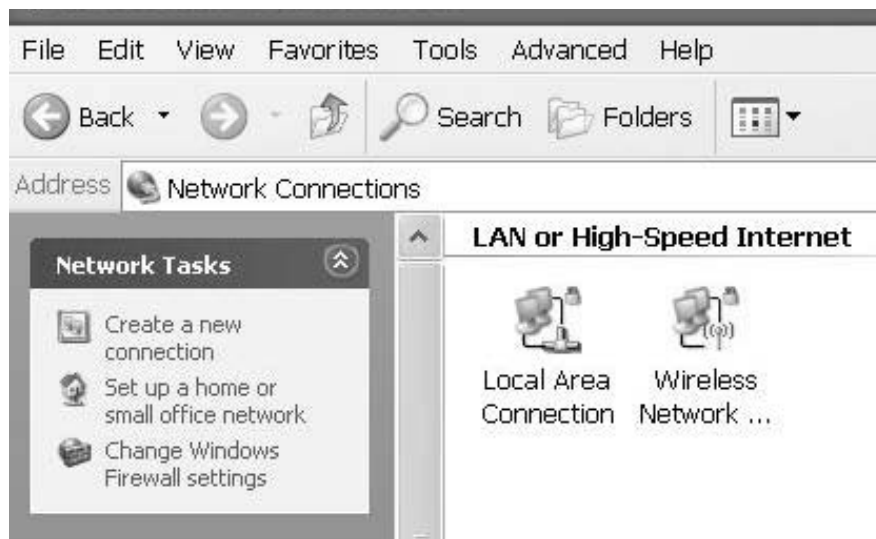
Router(dhcp-config)#domain-name mydomain.com

Router(dhcp-config)#ctrl + z

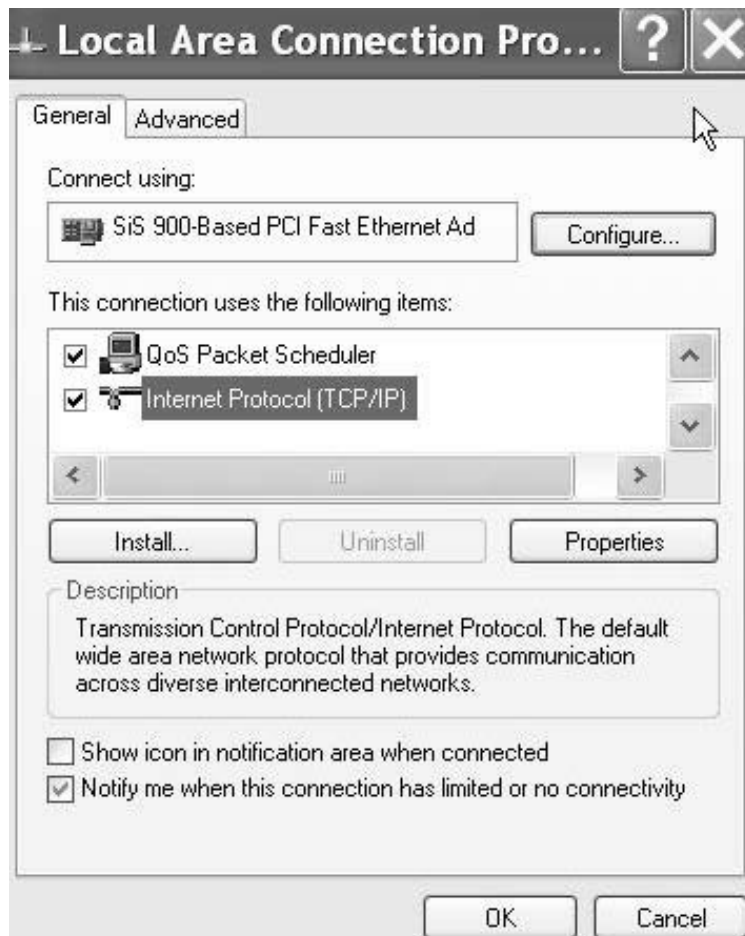
Router#

3. To configure the PC to use DHCP, do the following (this is on Windows XP):

Go to Network Connections, right click, and press "Properties."



Press on TCP/IP and ensure the network card is set to 'obtain IP address automatically.'





Go back to the network connections icon, right click, and press Repair which will enable a DHCP broadcast.



Now open a command prompt and issue the "ipconfig/all" command to check the TCP/IP settings on the network card.

```

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : mydomain.com
    Description . . . . . : SiS 900-Based PCI Fast Ethernet Adapter
    Physical Address. . . . . : 00-14-2A-A8-22-81
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 172.16.1.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.10.10.254
    DHCP Server . . . . . : 172.16.1.1
    DNS Servers . . . . . : 24.196.64.39
                           24.196.64.40
    Lease Obtained. . . . . : 20 November 2007 08:20:03
    Lease Expires . . . . . : 23 November 2007 08:20:03

C:\Documents and Settings\bigjobs>

```

Now check the DHCP settings allocated on the router.

Router#show ip dhcp binding

Bindings from all pools not associated with VRF:

IP address Client-ID/ Lease expiration Type

Hardware address/

User name

172.16.1.2 0100.142a.a822.81 Dec 09 2006 10:13 PM

You can see the IP address allocated from the pool and the correct MAC address. The router has added 01 to the front of the MAC when it wants to reserve an address.

Show run

Current configuration : 860 bytes

!

! Last configuration change at 22:19:11 UTC Wed Dec 6 2006

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname Router

!

boot-start-marker

```
boot-end-marker
!
!
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
no aaa new-model
ip subnet-zero
!
!
ip dhcp excluded-address 172.16.1.1
!
ip dhcp pool pool1
network 172.16.1.0 255.255.255.0
dns-server 24.196.64.39 24.196.64.40
default-router 10.10.10.254
domain-name mydomain.com
lease 3
!
ip cef
ip audit po max-events 100
!
interface FastEthernet0/0
ip address 172.16.1.1 255.255.255.0
speed auto
interface Serial0/0
no ip address
shutdown
no fair-queue
!
ip classless
no ip http server
no ip http secure-server
!
```

```
line con 0  
line aux 0  
line vty 0 4  
!  
end
```



© 2006-2011 HowtoNetwork.net All Rights Reserved. Reproduction without permission prohibited.